

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

**GEISMAR COMPLEX – HF PLANT
Honeywell International, Inc.
Geismar, Ascension/Iberville Parish, Louisiana
Agency Interest Number: 2082
Activity Number: PER20030005
Draft Permit 2394-V0**

I. APPLICANT:

Company:

Honeywell International, Inc.
P. O. Box 226
Geismar, Louisiana 70734-0226

Facility:

Geismar Complex – HF Plant
Junction of Hwy 30 and Hwy 3115, Geismar, Ascension/Iberville Parish, Louisiana
Approximate UTM coordinates are 687.600 kilometers East and 3345.250 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS:

Honeywell International Inc, (HII) - Geismar Complex, an existing chemical manufacturing facility, began operation in 1967. The HII - Geismar Complex – Hydrofluoric acid manufacturing plant (HF Plant) operates under State Permit 2394 (M-1) dated February 19, 1998, State Permit 2826 dated November 26, 2002, and Permit 2910-V0 dated November 17, 2005.

This Title V Permit (Permit No. 2394-V0) will consolidate both state permits and one Title V Permit 2910-V0.

The facility has two (2) state permits and one (1) Title V Permit that will remain effective until replaced by this Part 70 permit. These include:

Permit #	Units or Sources	Date Issued
2394 (M-1)	Hydrofluoric Acid Plants	February 19, 1998
2826	Cooling Towers	November 23, 2002
2910-V0	Emergency Generator	November 17, 2005

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One (1) Part 70 permits addressing portions of the facility have already been issued.

Permit #	Units or Sources	Date Issued
0180-00003-V0	Fluorocarbon Plants	March 23, 2001

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire were submitted by HII on September 11, 2003 requesting a Part 70 operating permit. Additional information dated October 20, 2005 and March 15, 2006 was also received.

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, on <date>, 2006; and in *The Gonzales Weekly*, Gonzales, on <date>, 2006. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List on <date>. The draft permit was also submitted to US EPA Region VI on <date>. All comments will be considered prior to the final permit decision.

Project description

Hydrogen Fluoride Plant

Hydrogen fluoride (HF) is produced by reacting fluorspar (calcium fluoride) with sulfuric acid (H₂SO₄) in an anhydrous environment. The reaction occurs in externally-heated horizontal rotary kilns. The produced HF gas is routed through a cooling and purification train for removal of water, H₂SO₄ mist, and other impurities. It is then condensed and routed to storage as commercial grade HF. Solid calcium sulfate (CaSO₄), a by-product of this process, is drawn from the furnaces, slurred with pond water, transported to a series of neutralizers, and deposited in a stacking facility.

Sulfur dioxide (SO₂) is formed by the partial reduction of the HF residue at furnace temperatures. Some of the SO₂ is condensed with the HF commercial grade product. The remaining SO₂ is carried with the condenser's overhead vapors to the tail gas scrubbers. SO₂ is removed from the commercial grade HF by distillation to produce high purity grade HF. The SO₂ is recycled to the cooling and purification train.

The tail gas passes through a series of three (3) wet scrubbers. The first of these, the acid scrubber, uses H₂SO₄ as scrubbing medium to recover HF which escapes the condensers. The recovered HF is rerouted to the furnaces. Each of the next two (2) scrubbers, the water and SO₂ scrubbers, use water as scrubbing fluid. The water scrubber absorbs silicon tetrafluoride and the SO₂ scrubber absorbs SO₂.

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The slurry mixture is processed through a neutralizer and the neutralizer effluent flows to the residue stack. In this step, solid mostly CaSO_4 settle out. Liquid leaving the pond system, typically at a pH between 2.0 and 2.5, is reused in the plant as a scrubber medium or slurry water. Excess pond water is treated in a clarifier where the pH is raised between 6 and 9 before discharge. Clarifier underflow is returned to the residue stack.

Ultra High Purity Hydrofluoric Acid Plant

Commercial grade finished HF from the HF plant is processed further to produce HF with extremely low metal concentration.

HF Additives Facility

Commercial grade finished HF from the HF plant is blended for offsite shipment.

This permit adds the HF purification project that consists in arsenic and phosphate removal and includes the following changes.

This permit removes the following Emission Sources:

1. Emission Point 89-77, HF Diesel Generator Engine
2. Four (4) Furnace Rotator Engines. These are:
 - Emission Point 89-78A, Furnace Rotator Engine No. 1
 - Emission Point 89-78B, Furnace Rotator Engine No. 2
 - Emission Point 89-78C, Furnace Rotator Engine No. 3
 - Emission Point 89-78D, Furnace Rotator Engine No. 4
3. Emission Point 1-94, Ultra High Purity HF Plant Fume Scrubber
4. Emission Point 2-94, Ultra High Purity HF Plant Fugitives
5. Emission Point 2-97, South Cooling Water Tower

This permit adds the following Emission Point not permitted before.

1. Three (3) Compressors, Emission Point 17-02, Atlas Copco Air Compressor, Emission Point 18-02, Brambles Sullair Air Compressor, and Emission Point 19-02, Ingersol Rand Air Compressor
2. Emission Point 10-05, North Cooling Water Tower 2
3. Two (2) pumps, Emission Point 20-02, Emergency River Water Pump and Emission Point 21-02, Emergency Sump Pump
4. Emission Point 24-02, HF Laboratory Hoods
5. Five (5) tanks, Emission Point 1-05, Tank U-802, Emission Point 2-05, Tank U-804, Emission Point 3-05, Sulfuric Acid Tank, Emission Point 1-06 Tank U-876, and Emission Point 2-06, Tank U-877
6. Emission Point 4-05, Catalyst Transfer
7. Emission Point 5-05, HF Additives Unit 2 Fume Scrubber
8. Two (2) Air Heaters, Emission Point 11-05, HF Furnace No. 1 Air Heater Seal and Emission Point 12-05, HF Furnace No. 2 Air Heater Seal

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9. Two (2) Furnaces, Emission Point 11-05A, HF Furnace No. 1 and Emission Point 12-05A, HF Furnace No. 2
10. Seven (7) insignificant activities
 - Emission Point 25-02a, Tank U-710
 - Emission Point 26-02, Sump Pump Fuel Tank
 - Emission Point 27-02, River Water Diesel Pump Tank
 - Tank U-803
 - Tank U-805
 - Tank U-806
 - TMS Tank
11. Fifteen Fugitives
 - Emission Point 4-02, Clam Shell Fugitives
 - Emission Point 5-02, Gantry Fugitives
 - Emission Point 6-02, Belt 1-2 Transfer Fugitives
 - Emission Point 7-02, Belt 2-3 Transfer Fugitives
 - Emission Point 8-02, Belt 3-4 Transfer Fugitives
 - Emission Point 9-02, Belt 4-5 Transfer Fugitives
 - Emission Point 10-02, Spar Storage Building No. 1 Transfer Fugitives
 - Emission Point 11-02, Truck Loading Fugitives
 - Emission Point 12-02, Haul Road Fugitives
 - Emission Point 13-02, Spar Storage Building No. 2 Transfer Fugitives
 - Emission Point 14-02, Hopper Transfer Fugitives
 - Emission Point 15-02, Grizzly Feeder Transfer Fugitives
 - Emission Point 16-02, Grizzly Feeder Fugitives
 - Emission Point 25-02, HF Lime Slaker Fugitives
 - Emission Point 6-05, HF Additives Unit 2 Fugitives

This permit also changes the following:

1. Adds refrigeration capacity and equipment
2. Modifies the HF production unit
3. Modifies the residue handling process to convert it from wet handling to dry handling
4. Upgrades the raw material, fluorspar, handling and drying process
5. Modifies the HF scrubber system to meet the requirements of the Federal HF MACT standard

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Estimated emissions in tons per year are as follows:

<u>Pollutant</u>	<u>Before*</u>	<u>After</u>	<u>Change</u>
PM ₁₀	61.44	52.78	-8.66
SO ₂	82.03	78.76	-3.27
NO _x	57.40	94.53	+37.13
CO	37.74	89.28	+51.54
VOC	5.12	9.73	+4.61

*includes the emissions from Permits Nos. 2826, 2304(M-1), and 2910-V0.

MACT requirements

The facility meets MACT requirement by complying with the Federal HF MACT Standard, 40 CFR 63 Subpart SS and 40 CFR 63 Subpart YY. The Geismar Complex – HF Plant will comply with the appropriate MACT requirements.

Air Modeling Analysis

Facility-wide Louisiana Toxic Air Pollutant (LTAP) dispersion modeling is required for applicable LTAP compounds with emissions above the Minimum Emission Rate for the Geismar Complex – HF Plant. Modeling submission with the Air Toxics Compliance Plan was submitted under LAC 33:III.Chapter 51.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

The insignificant activities associated with this permit are in the Emission Point List Table.

IV. Regulatory Analysis

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable

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terms conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

Wetlands

This permit does not include any impacted wetlands.

V. Permit Shields

Pursuant to LAC 33:III.507.1.1, HII requests that the Part 70 permit incorporate a permit shield for the explicitly stated federally applicable requirements in the Specific Conditions. Compliance with the terms and conditions of the permit shall be deemed compliance with all applicable requirements as of the date on which the permit became effective.

VI. Periodic Monitoring

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VII. Applicability and Exemptions of Selected Subject Items

See Permit.

VIII. Streamlined Requirements

None.

IX. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) - A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Sulfide (H₂S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year of NO_x or VOC for sources in non-attainment parishes).

PM_{10} - Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) - A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) - An oxide of sulfur.

Title V permit - See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.